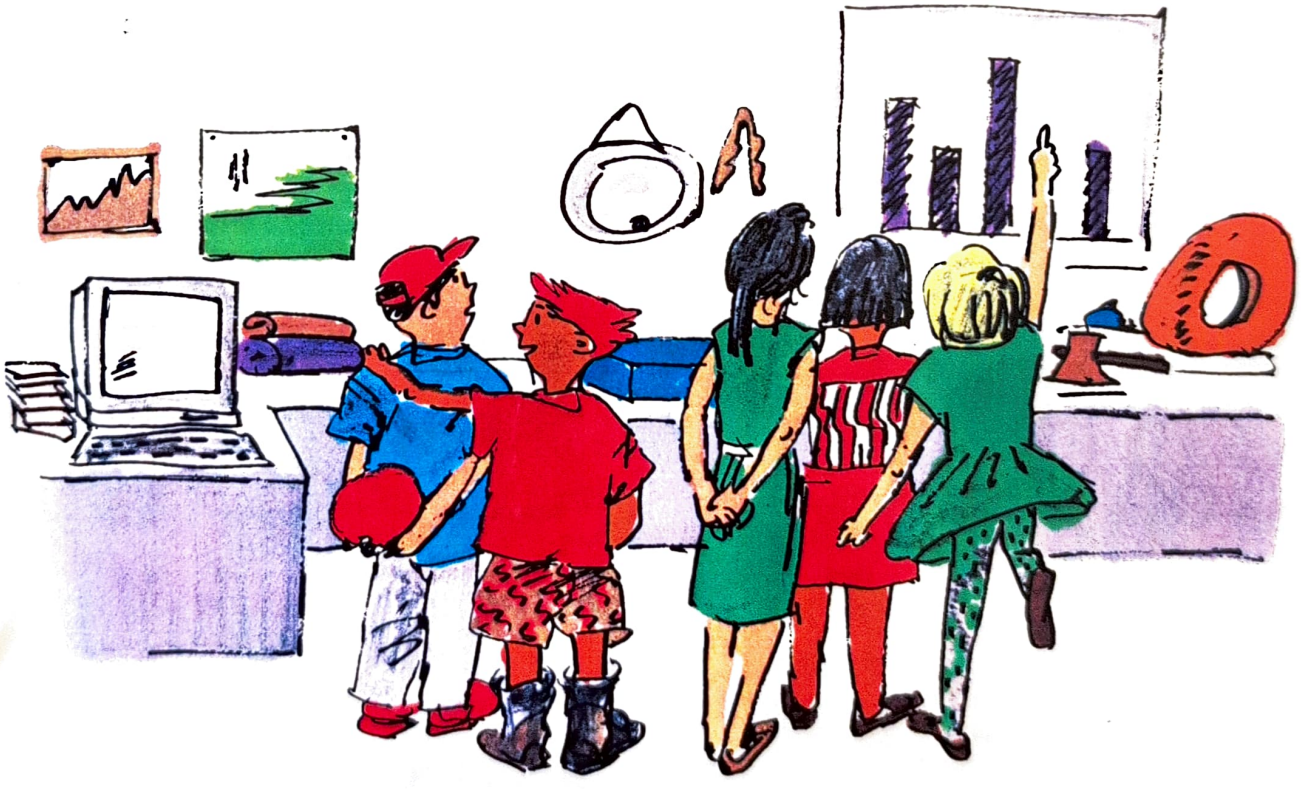
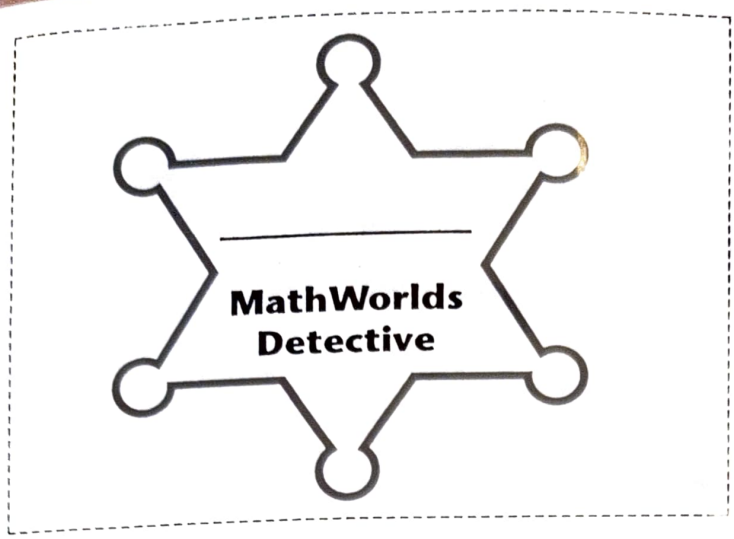
MathWorlds

Detective Agency Appendices

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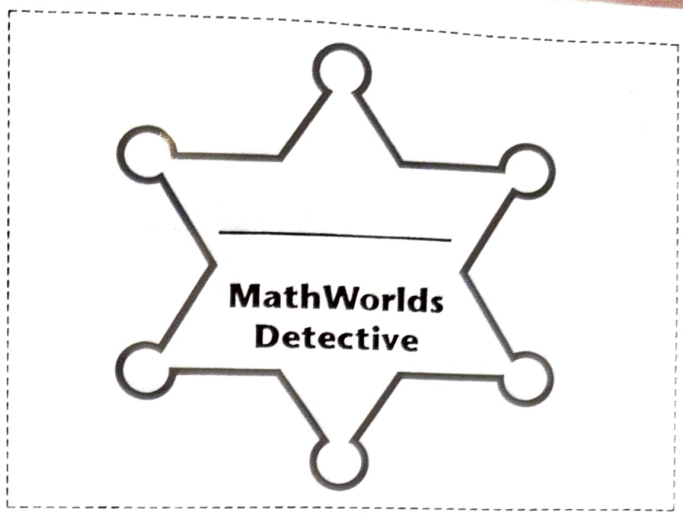
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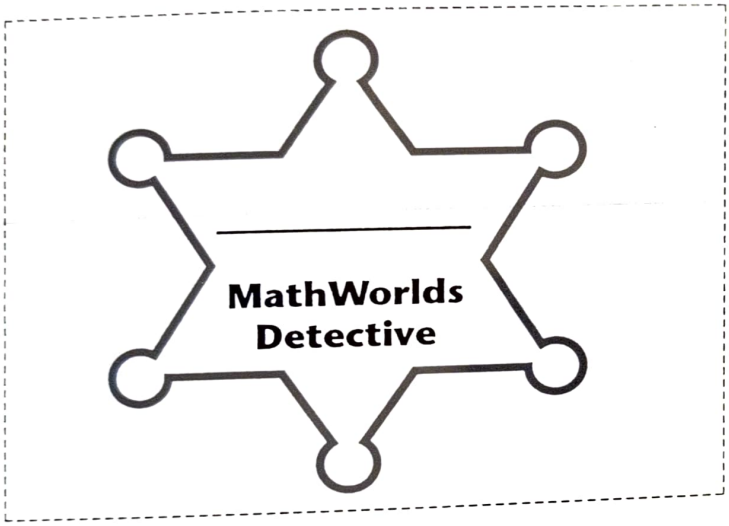
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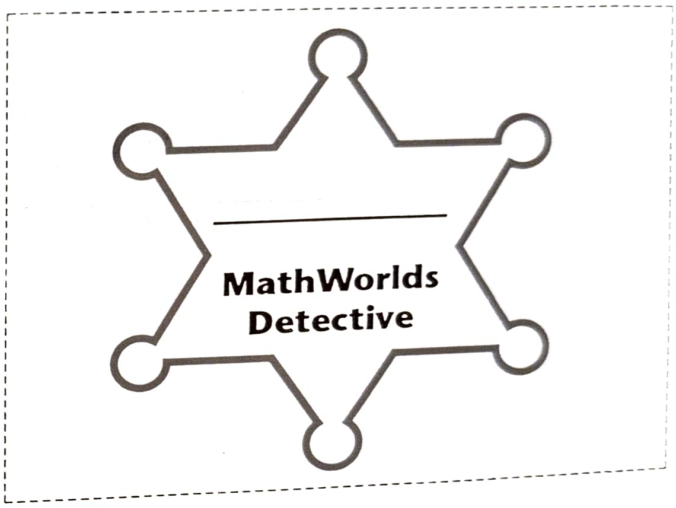
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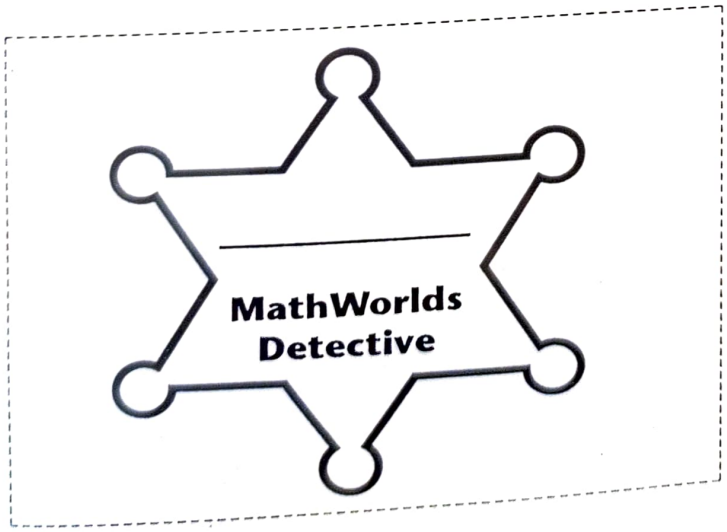
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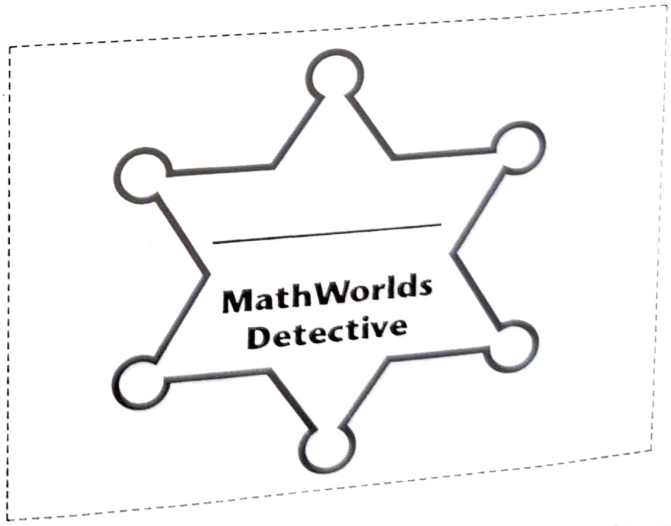

MathWorlds
Detective

MathWorlds

Detective Agency Appendices

Appendix A: The Security Industry

The following chart was compiled by professional security industry people under the facilitation of Grant MacEwan College. Its intention was to create a curriculum for security personnel (personal communication, Shepp, 1993).

Security Industry Occupational Profile

A. Investigate

1. Keep chronological and detailed notes
2. Preserve evidence
3. Gather evidence
4. Document evidence
5. Protect evidence
6. Interrogate
7. Conduct interviews
8. Plan investigation
9. Write Investigative reports
10. Document witness accounts
11. Conduct surveillance
12. Conduct criminal investigations
13. Conduct criminal defense investigations
14. Conduct domestic dispute investigations
15. Conduct undercover investigations
16. Conduct background enquiries
17. Conduct financial investigations
18. Conduct insurance investigations
19. Conduct retail fraud investigations
20. Recognize and investigate conflicts of interest and kickbacks
21. Recognize historical methods used to export/import contraband
22. Identify techniques used in shoplifting
23. Identify methods of drug diversions (hospitals)
24. Identify contraband
25. Identify potential shoplifters
26. Establish sources of information
27. Access computer data bases
28. Research and assemble data
29. Comply with 'format' for legal documents

B. Provide Physical Security

1. Protect personnel
2. Protect proprietary information
3. Protect property
4. Conduct security surveys
5. Identify various types of alarm systems
6. Implement computerized systems

7. Use security hardware
8. Implement inventory control procedures
9. Identify/contain dangerous/toxic substances
10. Control access
11. Control keys
12. Implement lost and found procedures

C. Conduct Patrols

1. Respond to inquiries and provide information
2. Conduct building checks
3. Identify fire and safety hazards
4. Identify damages
5. Follow checklist
6. Follow instructions
7. Identify trouble spots
8. Recognize the unusual
9. Conduct searches
10. Direct traffic
11. Recognize and identify the client's facility processes
12. Conduct cash escorts

D. Respond to Problems

1. Respond to alarms
2. Take control and manage emergencies
3. Implement emergency contingency plans
4. Conduct evacuation procedures
5. Respond to elevator problems
6. Respond to disturbances
7. Respond to medical emergencies
8. Respond to fire emergencies
9. Respond to bomb threats
10. Identify and respond to crimes against persons
11. Respond to environmental accidents
12. Respond to hostage taking situations
13. Respond to natural disasters
14. Respond to industrial accidents
15. Respond to missing persons report
16. Control crowds
17. Protect crime scene
18. Make referrals to support services/agents

E. Powers and Authorities

1. Recognize civil and criminal liability
2. Apply Federal, Provincial and Municipal statutes
3. Comply with Search and Seizure laws
4. Apply rules of evidence
5. Conduct body searches
6. Comply with Chart of Rights legislation

7. Comply with human rights legislation
8. Recognize civil law (legal) documentation and processes
9. Quote and apply corporate rules and regulations
10. Identify violations of employment standards legislation
11. Describe Private Investigator and Security Guard act licensing regulations

F. Operate Security Equipment

1. Operate electronic monitoring systems
2. Arm/disarm alarm systems
3. Use video & C.C.T.V systems
4. Operate camera equipment
5. Operate identification card systems
6. Use X-Ray equipment
7. Operate fire equipment
8. Use first aid equipment
9. Apply restraints (hand cuffs, etc.)
10. Apply/use specialized criminalistic equipment

G. Specialized Security Skills

1. Provide personal protection for V.I.P.s
2. Take fingerprints
3. Escort deceased bodies
4. Trace and solve simple mechanical/electrical problems in security systems
5. Use dogs (search, guard)
6. Prevent crime through environmental design (CPTED)
7. Use basic audit and accounting procedures
8. Cite/describe Canadian airport security system
9. Use firearms
10. Maintain class (3) license
11. Identify weapons

H. Communication

1. Communicate in writing
2. Communicate verbally
3. Develop memory and observation abilities
4. Interpret body language
5. Communicate by radio
6. Communicate by telephone
7. Write letters
8. Complete forms
9. Complete incidence reports
10. Obtain descriptions
11. Identify weapons
12. Complete damage reports
13. Complete accident reports
14. Give evidence in court
15. Interpret international symbols and signs
16. Follow policy when dealing with the media

17. Implement emergency notification procedures

I. Interpersonal Skills

1. Maintain a calm disposition in a crisis situation
2. Listen with patience
3. Use discretion
4. Demonstrate assertiveness
5. Maintain self-control
6. Remain objective
7. Treat people with respect and dignity
8. Display flexibility
9. Assess honesty and integrity in others
10. Deal with difficult people

J. Promote Security Service

1. Promote security awareness
2. Describe historical development of security industry
3. Recommend changes and improvements to service
4. Explain role of security in criminal justice system
5. Conduct crime prevention seminars
6. Act as a liaison with other agencies

K. Supervise Staff

1. Hire/fire staff
2. Orientate and train new personnel
3. Assign tasks
4. Evaluate staff
5. Assist staff to establish career goals
6. Demonstrate leadership
7. Manage time
8. Accept progressive responsibility

L. Personal Attributes

1. Maintain confidentiality
2. Demonstrate honesty and integrity
3. Demonstrate loyalty
4. Make decisions and take responsibility
5. Establish professional goals and objectives
6. Accept shift work
7. Comply with dress and deportment standards
8. Manage stress
9. Maintain physical fitness
10. Participate in professional associations

DACUM Committee: Joe Collinson, Public Works Alberta; Lloyd Cosens, Esso Petroleum Canada; Glen Fraser, Royal Alexandra Hospital Security; Doug Langevin, U of A Campus Security; Howard Moster, Triple Five Corporation Ltd. Vince Peniak, Employment Standards Branch; Darwin Peerson, Fantasyland Hotel Security; Dennis Shepp, Shepp Johnman & Associates; Patricia Smith, Sears Canada Inc., S/Sgt. Collin Venn, Edmonton Police department; Catherine Watson, Customs Canada; Sgt. Larry Weber, R.C.M.P.

Facilitator: Dr. Wilbur Collin, Kathleen Preclaw

Policy Statement

For Investigators at
SHEPP JOHNMAN & ASSOCIATES INVESTIGATIONS INC.

General

1. The General Manager shall be responsible for the prompt performance of investigation services for the company.
2. The General Manager may direct employees of the company to assist in the prompt performance of investigation services for the company.

3. Job Descriptions

a) An investigator shall investigate such matters as assigned by the General Manager or his designate.

b) The investigator shall perform the necessary enquiries and surveillance as directed in the assignment and report the findings to the client.

1. Reports shall be dictated by the investigator within 14 days of initial assignment.
2. Subsequent reports will be dictated ever 30 days thereafter.

c) All investigators will be proficient with the use of the following equipment:

- 35 mm Camera and attachments;
- 100 ASA; 200 ASA; 400 ASA; 1000 ASA and 1600 ASAS 35 mm films;

3. 8 mm Video recording camera units;
4. Telephone equipment, cellular and office type;
5. VHF portable radio equipment;
6. Portable voice recorder (dictaphone) equipment;
7. The operation and control of any motor vehicle commonly operated by the company or its employees in the course of employment.
8. Data processing equipment in the form of IBM AT computers, laser printers; facsimiles, micro processors, interface terminals and any other equipment used in the normal operations of the company;

d) Investigators will have an academic standing from a recognized college or university with a related law enforcement or Security Science Diploma or degree, Security Management Certificate or related experience from a recognized law enforcement agency or a combination of both, education and experience.

e) Investigators will maintain a knowledge of the Criminal Code, Private Investigator and Security Guard Act, Employment Standards Act, Labour Relations Act, Individual Rights Protection Act and any other Federal or Provincial statute relating to investigations.

f) The investigator will maintain knowledge and review recent Court decisions on Criminal Code, (as above), regarding matters of investigations.

g) Investigators will provide an approved 35 mm camera and attachments and an approved motor vehicle.

4. Procedures

A. Employment

1 All investigators will:

a) be employees of the company;

b) participate in a written employment contract as outlined in Appendix "A";

c) participate in a Confidentiality and Non-Disclosure Agreement as outlined in Appendix "B";

c) Complete an "Application for Employment" form as outlined in Appendix "C."

B. Administration

1. The Office Manager shall conduct the necessary procedures of payroll and accounting for enumeration of investigators.

C. Objectives

1. The investigators will be required to perform the following specific objectives competently:

a) Conduct interviews with persons;

1. Covertly to learn information without the person aware of the investigation.
2. Directly to learn information with the person aware of the investigation.
3. To learn employment details.
4. To learn historical or background information about third parties.
5. To obtain accurate witness information.
6. To obtain financial and asset information.
7. To obtain information of specific importance to the successful conclusion of the investigation.
8. To obtain written statements.

b) Conduct interrogations with persons:

1. To obtain a confession or admission to an act involved in the investigation.
2. To obtain information which may involve another individual in the investigation.

c) Contact sources of information:

1. In the Credit Bureau of Edmonton or its related companies,
2. In the Federal government and its agencies;
3. In the Provincial government and its agencies,
4. In Law Enforcement,
5. With other investigative branches or companies,
6. With private industry and business,
7. Members of professional associations,
8. Financial institutions,
9. Any related organization or firm associated to an investigation, and report such findings.

d) Conduct surveillance in daylight and darkness;

1. Covertly stationary in a private automobile
2. Covertly in motion from a private automobile as a passenger and driver
3. Covertly stationary in a corporate surveillance vehicle

4. Covertly in motion in a corporate surveillance vehicle as a passenger and driver
5. Covertly stationary on foot
6. Covertly in motion on foot

e) Conduct surveillance with;

1. 35 mm camera and attachments.
2. Film, 100, 200, 400, 1000, 1600 ASA (colour)
3. 8 mm video recording unit (Sony)
4. VHS format RCA unit.
5. Covert Sony CCTV and time lapse equipment.
6. The Corporate surveillance vehicle.
7. voice communication equipment
8. Voice recording equipment.

f) Conduct and conclude investigations for;

1. Locating and tracing persons.
2. Financial, asset and liability profiles on persons, companies and organizations.
3. Background and historical profiles on persons, companies and organizations.
4. Determining the current and past activities of insurance claimants.
5. Litigation support, insurance defense and corporate.
6. Corporate loss due to theft, espionage, sabotage, fraud, embezzlement, false pretense or any other risk, crime or otherwise.
7. Personnel related inquiries for pre-employment or promotion.

g) Conduct surveillance;

1. Involving injury claimants for insurance matters.
2. Concerning property in a loss prevention matter.
3. Concerning persons or property involving crime or the prevention of crime.

h) Conduct enquiries with;

1. The Credit Bureau.
2. Financial institutions.
3. Land Title Office
4. Personal Property Registration Branch (Central Registry).
5. General Registry.
6. Corporate Registry.
7. Motor Vehicles Branch.
8. Police sources
9. Utilities sources.
10. Confidential sources.
11. Informants.
12. Court records, Queen Bench and Provincial, Civil, Criminal and Federal
13. Bankruptcy records.
14. Educational institutions.
15. Insurance companies or their agents
16. Employers and places of employment.
17. Any sources which may need to be contacted relating to a particular matter or investigation.

i) **Collect, organize, and document facts,** intelligence, and information on the investigation file in an orderly chronological manner.

j) **Document hourly fee** incurred on enquiries and services and disbursements in an orderly chronological manner on the investigation file.

k) **Submit a written report** to the client within diary date parameters with the particulars, facts, intelligence and information from the investigation file.

l) **Compile a fee account** to the client on an investigation file when investigation is concluded or on an interim basis.

m) **Maintain verbal contact** by telephone or personal visit updating the client with the investigation files particulars.

n) **Photograph evidence** and intelligence activities then promptly process, organize, and mount the photographs in an exhibit fashion for the client.

o) **Prepare and present evidence in Court.**

p) **Conduct searches for information with:**

1. Hendersons directories.
2. Telephone directories, published and non-published.
3. Reference directories
4. Industry related directories, manuals, publications, documentation, periodicals, newspapers, magazines, and research papers.

q) **Videotape evidence and intelligence activities** and exhibit for the client.

1. Investigators will be reviews and evaluated semi-annually in the initial two years and annually thereafter by the General Manager.
2. a) Investigators will be supervised and trained by the General Manager or his designate for a period of 6 months from the date of employment.
   b) The General Manager's designate will be an investigator with a minimum of two years experience.
3. Should the investigator receive an evaluation recommending further on the job training, the training, period may be extended by the General Manager.
4. The investigator will not manage investigation files until successfully completing the training period.
5. The General Manager or his designate will supervise the review all investigation files and reports submitted by the training investigator.
6. The training investigator will work the necessary hours required when accompanying the General Manager or his designate.
7. The training investigator will accompany the General Manager or his designate on investigation files during the training period.

ParentFile

MathWorlds

Appendix B:
ParentFile

Name _____

Detectives Everywhere

Dear _____

Old trench coats

Magnifying glasses

Finger Printing

Solving Cases

Sherlock Holmes...

Our classroom is becoming a *Detective Agency*, and we are going to be training as detectives. We'll be learning how to:

- plan an investigation
- become keen observers
- gather evidence to support a case
- arrange the evidence to make a case
- report the results of our investigation
- and many other things

We'll be turning the classroom into a *Detective Agency* so that we can organize everything to support our investigations.

So expect me to be talking about detective work, about some famous detectives and some not- so famous ones, and about how I'm becoming a keen observer of even simple things.

I'd like to hear about exciting mysteries or cases you know about — maybe our Agency will be able to solve them!

Detective-In-Training

_____

Date _____

Name _____

(Name of Detective Agency)

Dear _____,

My basic training is now complete and I am now a ...

Detective For Hire!

Have badge—will travel

I am now willing and able to go where help is needed — to solve cases and mysteries wherever they may be.

Our agency has taken on several cases and I'll be working on them over the next few weeks.

I am available for consulting if there are any cases that need solving at home.

I am building a résumé to show all the skills and capabilities I am acquiring as I solve these cases. Guess what's in it so far?

I am also writing a case of my own for others to solve. I'm just getting started with this. Any ideas?

Signature of Detective

_____

Date _____

Name _____

(Name of Detective Agency)

Dear _____,

Case Fair

We have solved several cases over the past few weeks.

Some cases dealt with Wanted Posters, some with disguises, and others with coding the identity of prison mates.

In the meantime we have learned many things, including:

_____

_____

_____

_____

We are culminating our case work with a Case Fair, which is a showcase of the Cases we made ourselves. We'll spend most of the fair trying to solve each other's cases.

We'd like to invite you to join the fair,

on _____,

at _____ o'clock.

Happy Detecting,

Signature of Detective

_____

Date _____

Appendix C: LitFile

Integration Ideas

When Reading a Mystery Novel to the Children During *Detective Agency* Tasks.

1. Book Jackets

- Examine the correlation between the book jacket and the Getting to Know the Problem stage of problem-solving.
- How much information is provided?
- How much more information is given?
- If you were a detective, develop a plan which could be used to solve the problem. What information do you know, what information is relevant and what additional information do you need to know in order to solve the problem?
- Predict what might happen in the literature selection.

2. Ongoing activities

- With each chapter that is read, determine if the activities that occur are activities which would support Getting to Know the Problem, Devising a Plan, Carrying Out the Plan, Looking Back on the Problem.
- Chart each chapter.
- By doing a comparison, determine if there is a pattern in mystery stories which would indicate the number of chapters that are devoted to the specific step in problem-solving

3. Characteristics of good detectives

- Throughout the chapters that are read, determine if the main character in the story is exhibiting the characteristics of a good detective.
- Are there any more characteristics which should be added?
- Are there any characteristics which will lead us to believe the main character is not as good a detective as s/he could be?

4. Detective books and mystery stories

Throughout the unit the students should be encouraged to read as many mystery books as possible. They need to discover the language of mystery and the language of detectives. Charts should be posted in the room which are used to collect detective words, words which would describe mysterious settings or create moods, ways authors write which keeps you wanting to read more, great story beginnings, etc.

Writing Conferences

One Method

Throughout the Module it is suggested that students could be involved in creating their own detective story. The story should reflect their knowledge of problem-solving , the characteristics of a good detective, and some of the knowledge of measurement or geometric concepts.

Before asking the students to write, have a writing conference with each student. The purpose of the conferences is to plan their stories. They feel more confident in their writing when they have someone to talk with about their plans. You will seldom hear "I don't know what to write about." During the conference allow students to do the talking while you record their responses. Their heads can create a lot faster than their pens! These conferences may also be recorded on tape. When planning and creating their story, remind the students that they are following the steps to problem-solving. At times other students can be asked to help add ideas and suggestions. The author can reject or accept these suggestions.

Steps to Problem-Solving Conferences:

1. Getting to know the problem

Setting

The setting for their mystery story is the key. It is strongly suggested that students set their story in place that they are familiar with, such as the lake, or a mall or a ski hill or some other place they have been to. t is very difficult for a student to create a mystery story in Japan if they have never been there. Most authors create stories around places they are familiar with. Ask students to describe everything they can about their setting. Discuss with them the kind of mystery which could possibly happen in the setting they describe. For example, once a student begins to describe a ballet school, a mystery soon emerges, once the child "discovers" the teacher is missing.

Plot and characters

At this point students can determine what the basic problem will be in their detective story and the characters who will help solve the problem. When thinking about the characters it is often easier to pattern them after someone the students know. Make sure, however, that they don't use classmates as characters without prior permission. It is often very easy for students, in their stories, to be the detective. Once again, they will be familiar with the setting where the detective lives, his/her family, pets, activities, and daily routines. These make a richer story when integrated into the mystery. How would the detective really act or think?

2. Making a plan

At this time the students should outline their plots. they should make a plan as to how the detective will go about solving the problem. What clues will be discovered? Where will the clues be located? This can be mapped out as a writing conference. Ask that the students bring their written ideas to the conference, to

be expandedupon. The teacher can help script the conversation. Brief notes will help students when the actual writing begins.

3. Carry out the plan

At this time the students are asked to write their stories. The first few words are always the hardest. Have them check mystery stories for good beginnings that mystery writers have used. It is also suggested that students write on every other line. This will allow an editor space in which to make changes.

4. Looking back

The next section in the story-writing model is the editing section. It is done as a conference again. Have the students read their stories to you, or you read it to them. The conference is used to focus on vague, boring and overused words as well as to fine-tune the stories' mechanics. As the story is read, students will often hear their own mistakes. The story must flow, and the problem must be solved. Other students are often helpful at this point, adding encouragement and helping expand vocabulary. This conference also ensures that the students stories stay on topic and don't wander. The information presented is necessary to the sequencing of the story. Sequencing does not necessarily happen at the end of all the writing. It can happen when students want advice about how their mystery story is progressing. Once again the teacher (or a parent or an aid) can act as the person who will help the student "script" his/her story.

At this time, ask the student to create a good copy of his/her story. The quality of the mystery stories created is often quite high.

A personal note. When given the assignment to write a mystery story, one of my students asked me to write one as well. I was incredibly nervous and did not want to share what I had written. It is not easy; perhaps teachers should force themselves at times, to create the assignments they ask students to write. A secure environment must be created whereby the students feel confident sharing , giving, and receiving advice.

Literature Selection

Throughout the *Detective Agency* module, a mystery story could be read aloud to students during the day when Language Arts is taught. The following is a list of some mystery books which could be used with students at this age. Students need to hear stories, not just read them. The following is a group of read-aloud books on the theme of mystery. They are available at most libraries and book-stores. This list simply provides a few suggested titles to get you started. Try to pick a book which will keep your interest as a teacher. It should also be a book which you could integrate into other areas of your curriculum. Local children's libraries have wonderful lists of mystery stories.

The titles on this list are organized in the following manner:

Title:

Author:

Publisher:

Year:

Grade Level:

Annotation:

Integration With Detective Agency Concepts

Integration With Other Areas of the Curriculum

Other Books by the Author

Literature Selection

Title: *Windcatcher*

Author: Avi

Publisher: Bradbury Press
An affiliate of Macmillan Inc.
866 Third Ave.
New York,NY 10022

Year: 1991

Grade Level: Div. 2

Annotation

Tony does not want to spend the summer at his grandmother's house in Connecticut. While learning to sail he finds himself in search of some buried treasure and meets some rather suspicious characters.

Integration With *Detective Agency* Concepts

1. Create a treasure map which is drawn to scale. Use the names of the islands found in the story or create a new map of your own . Use the 1 cm= 1 km scale. After the map is drawn, have the students decide where the treasure might be hidden. They could then write directions to find the hidden treasure based on measurements from the map. For example, "Go 5 km beyond Monkey Island, then go 8 km south."
2. Research sailing ships that sailed during the 1888s. Draw a picture of a ship to scale.
3. Determine the geometric shapes which would be found on a sailing ship. Create a ship based only on geometric shapes.
4. Compare nautical measurements with land measurements. How many kilometers is a knot?
5. The effectiveness of Tony as a detective and problem -solver.
6. Use a compass and linear measurement for orienteering.

Integration With Other Areas of the Curriculum

1. Research:
   - Sailing words
   - Sea animals
   - Sailing ships
   - Meaning of the small flags flown from ships
   - Historic dates and famous treasure finds
2. Simple machines and pulleys
3. The art of sailing
4. Decision-making/ problem-solving and the consequences of your decision
5. Alberta Social Studies Curriculum Topic B, Explorers

Other Books by the Author

True Confessions of Charlotte Doyle

Literature Selection

Title: *The Dead Man in Indian Creek*

Author: Mary Downing Hahn

Publisher: Avon Books
The Hearst Corporation
1350 Avenue of the Americas
New York, New York 10019 USA

Year: 1990

Grade Level: Division 2

Annotation

While on a camping trip, Parker and Matt discover the body of a dead man floating in Indian Creek. They find evidence that will lead to some deep trouble for the boys.

Integration With *Detective Agency* Concepts

1. Create a scale map of Indian Creek and the places where the boys found their clues.
2. The boys need five cans of tomato juice to clean off the smell of a skunk. How many liters of tomato juice is this?
3. Compare the qualities of the detectives established in the MathWorlds module with the qualities the boys exhibited while they were solving the case and looking for clues.What problem-solving strategies do they use? Which qualities do they lack?
4. What information might the police detectives need to locate? Make a chart including the following:
   - What information needed to be collected?
   - What clues were found?
   - What measurement was used for each clue?
5. Plan a trip to an antique store. Activities which could follow would include:
   - Collect illustrations of the items in the store.
   - Detective hunt to find the geometric shapes of various antiques.
   - Locate any pieces which show a line of symmetry
   - Collect the cost of some of the items. An antique store could be set up in the classroom.

Integration With Other Areas of the Curriculum

Research antiques and use the research as part of an art study on kinds of period furniture and artifacts.

Other Books by the Author

Wait Till Helen Comes
Follow the Mystery Man
The Spanish Kidnapping Disaster

Literature Selection

Title: *Cold Midnight in Vieux Quebec*

Author: Eric Wilson

Publisher: HarperCollins Publishers Ltd.
Hazelton Lanes, 55 Avenue Road, Suite 2900
Toronto, Ontario M5R 3L2 CANADA

Year: 1989

Grade Level: Division 2

Annotation

Tom Austen arrives in Quebec City for the Pee Wee Hockey Tournament during the Winter Carnival. While waiting near a phone booth, the lady using the phone is killed. Tom is now in search of a man with a dagger tattoo and a white car. Excitement and suspense follow as Tom tries to discover new clues to help solve the mystery.

Integration With *Detective Agency* Concepts

1. Mapping skills: Keep a record of the towns and cities that Tom visited. Use the map to determine how far he travelled.
   Using a map of Quebec City, determine how far Tom travelled in the week.
2. Collect pictures of the famous buildings in Quebec City. Examine the structure of the buildings to determine the geometric shapes which are predominant in the buildings.
3. Design a fortress made out of only geometric shapes.
4. Design a science experiment which would examine the number of liters required to create a small ice sculpture. Determine the amount of water. Freeze it. Create a sculpture and determine the amount of ice which is lost in the carving.
5. Create menus which could be found in McDonalds. Have students pretend they are purchasing various meals.
6. How much does a person's weight change when wearing hockey equipment?

Integration With Other Areas of the Curriculum

1. Eric Wilson creates mystery stories set in various locations in Canada. Students could read mystery books to determine various facts about other parts of Canada.
2. any French words are used in this book which could tie into the French part of the curriculum.

Other Books by the Author

Murder on the Canadian, Vancouver Nightmare
The Ghost of Lunenburg Manor, The Kootenay Kidnapper
Vampires in Ottawa, The Green Gables Detectives
Code Red at the Supermall

Literature Selection

Title: *Megan's Island*

Author: Willo Davis Roberts

Publisher: Anthenum
Macmillan Publishing Company
866 Third Avenue, New York,NY 10022 USA
(Collier Macmillan Canada, Inc.)

Year: 1988

Grade Level: Division 2

Annotation

Eleven-year-old Megan is astonished when her mother takes her and her younger brother to their grandfather's cabin a week before school is out . Mother leaves them there and seems to disappear. Strangers have followed them. A suspenseful mystery unfolds.

Integration With *Detective Agency* Concepts

1. Throughout the story the children constantly search for clues and reasons for the arrival of the mysterious strangers. The methods that are used follow the problem-solving model. Charts could be created which would list the clues and the decisions made by the children , leading to the actions taken with these clues. Were these wise decisions? What did the information lead us to believe? What other information is necessary to help solve the mystery?
2. Examine books about the animals of the sea. What are some geometric shapes found in sea creatures and shells?
3. Students can design a treehouse to scale. Decide which geometric shapes could be used. Draw the blueprints. Create a model of the treehouse based on the blueprints and the scale students created.

Integration With Other Areas of the Curriculum

1. Bring in the game of Clue to play.
2. Health curriculum;
   - What is a family?
   - How important is a name?
   - Interpersonal relationships, with parents and other children. What motivates children to "act up" at school?

Other Books by the Author

What Could Go Wrong
Scared Stiff

Literature Selection

Title: *What Could Go Wrong?*

Author: Willo Davis Roberts

Publisher: Antheneum
Macmillan Publishing Company
866 Third Avenue, New York,NY 10022 USA
(Collier Macmillan Canada, Inc.)

Year: 1989

Grade Level: Division 2

Annotation

Gracie and her cousins are travelling to San Francisco to meet their aunt. They begin to suspect something dangerous is about to happen when their plane makes an emergency landing, a friendly old lady is assaulted, and they are followed by some rather suspicious characters.

Integration With *Detective Agency* Concepts

1. A study of measurement as it is related to the travel industry:
   - schedules and the 24 hour clock
   - weight of luggage allowed on flights
   - cost of tickets
   - reading tickets and schedules
   - time of flights
   - length of flights
   - planning a trip
2. study of the travel industry as it relates to geometry:
   - symmetry in planes
   - geometric shapes in logos
   - creating new logos
3. Creating crossword puzzles based on measurement and geometry words.
4. Making secret codes based on geometric shapes.
5. Creating Hawaiian shirt pattern.

Integration With Other Areas of the Curriculum

1. In Science a study of flight, using paper airplanes.
2. In Language Arts, a study of characters. Reunions. If students in the class were to meet in ten years, predict what each member of the class would be doing .
3. What techniques does the author use to make you want to keep reading?

Other Books by the Author

Scared Stiff
Megan's Island

Literature Selection

Title: *Dew Drop Dead*

Author: James Howe

Publisher: Antheneum
Macmillan Publishing Company
866 Third Avenue, New York, NY 10022 USA
(Collier Macmillan Canada, Inc.)

Year: 1990

Grade Level: Division 2

Annotation

A Sebastian Barth mystery story. A dead body disappears. Sebastian Barth and his two friends must prove to the police that there really was a body, that it was not a homeless derelict who simply wandered off.

Integration With *Detective Agency* Concepts

1. Create a floor plan of the hotel where the body was found. Make sure it is drawn to scale.
2. Make evidence charts for the body that was found.
3. Make some chocolate pecan cookies.
4. Create hieroglyphics using only geometric shapes.Develop a secret code.
5. Examine playing cards for symmetry.
6. Create an imaginary soup kitchen for the homeless. Calculate:
   - the cost of the food
   - the amount of food needed to be purchased
   - kind of food
   - best prices
   - schedule for workers
   - size of building needed

Integration With Other Areas of the Curriculum

1. Research on the homeless, interviews, writing their stories.
2. Health: The kind of food which could be used at a soup kitchen which would be nutritionally sound.
3. The meaning of French words could be explored.
4. Creating good titles for mystery stories.
5. Discuss the meaning and the impact of mysteries from page 123.
6. Use games such as Clue and Scrabble

Other Books by the Author

Bunnicula
Howliday Inn
The Celery Stalks at Midnight
What Eric Knew
Stage Fright
Eat your Poison Dear

Additional Mystery Titles

1. DeClements, Barthe. *Wake Me At Midnight*. New York: Viking 1991
2. Fleishman, Sid. *Jim Ugly*. New York: Greenwillow Books, 1992
3. Hall,Lynn. *The Tormentors*. San Diego: Harcourt Brace Jovanavich, 1990
4. Naylor, Phillis Reynolds. *Bernie and the Bessledorf Ghost*. New York: Atheneum, 1990
5. Nixon, Joan Lowery. *High Trail To Danger*. New York: Bantam Books, 1991
6. Petersen, P.J. *Liars*. New York: Simon & Schuster, 1992
7. Stephenson, Anne. *Paper Treasure*. Toronto : General Paperbacks, 1991
8. Voight, Cynthia. *The Vandermark Mummy*. New York: Antheneum, 1991

Appendix D: ComputerFile

The **ComputerFile** activities have been designed so that:

- Students will be working primarily in cooperative learning groups of four. Each group will operate as a different detective agency. Two cooperative learning strategies will primarily be used: **Learning Together** and **Jigsaw.**
- Students will be using one or two computers in the classroom and, therefore, the computers will be shared by all of the detective agencies. You may have to modify the activity if it will be done in a computer lab.
- The teacher may choose to do some rather than all of the computer activities.

Graphics Activities

- Use any suitable graphics program.The example used here is *Dazzle Draw* for the Apple.
  Graphics activities can be easily adapted to *Logo*.

Graphics Activity	Related to
1. Agency Logo	Lesson 1-2
2. Disguises for Detectives	Lesson 1-3
3. Mysterious Places	Lesson 3-2
4. Villains' Mug Shots	Lesson 3-4

Database Activities

A database of 16 records is included for AppleWorks on the Apple IIe. If you will be using some other database program, create your own copy of the database by using the information on **Activity Sheet #DB2.**

Database Activity	Related to
1. A Database of Villains	Section 2
2. Solving Cases with Databases	Section 3
3. More Cases with Databases	Section 3
4. A Database of Detectives	Section 3

Computer Assisted Instruction

CAI Activity	Related to
1. Mystery Objects, MECC	Lesson 1-1
2. Code Quest, Sunburst	Lesson 1-2
3. MoneyWorks, MECC	Lesson 2-3
4. MeasureWorks, MECC	Lesson 2-4
5. ClockWorks, MECC	Lesson 3-5

Other Software for the *Detective Agency*

1. *Children's Writing and Publishing Centre*, The Learning Company
   Publish the front page of a newspaper in which a crime has been reported. What other things were happening that day? (Apple IIe or MS-DOS. Macintosh version is The Writing Centre.)
   Write a chain story on the computer by adding to the beginning, middle, or end. The first person can describe the scene; the second can introduce a suspect. The third can plant some clues; and so on.

2. *Mystery Matter*, MECC
   Extend the activities in the "crime lab" to include tests for the physical and chemical properties of matter. The tests in this simulation include pH, density, reaction to water, freezing point, boiling point, electrical conductivity, and magnetism. Students compare the results of their tests with information in a database to determine the substance's identity. With each investigation, students learn about the processes of scientific investigation. (Apple IIe only)

3. *Print Shop*, Broderbund
   Create letterhead paper and a banner for each detective agency. Create a poster summarizing the agency's policy and incorporating its logo. (Apple IIe, Macintosh or MS-DOS)

4. *Super Story Tree*, Scholastic
   Working in cooperative groups, have students plan and create illustrated branching stories based upon a mystery theme. Using *Super Story Tree*, the story can include graphics, special effects, and sounds. The story branches from one page to the next in three ways: continue, choice, and chance. A continue link takes the reader directly to the next page. A choice link gives the reader up to eight alternative paths to follow. A chance link sends the reader randomly to one of two different pages. Stories are saved onto disks which are self-running, or the stories can be printed in typical choose-your-own-adventure format. (Apple IIe or MS-DOS)

5. *Where in the World is Carmen Sandiego?*, Broderbund
   In this popular interactive simulation, students decipher clues about national flags, currency, history, landmarks, culture, and geography as they travel to 30 great cities of the world trying to find an ex-secret agent turned thief. Students use a World Almanac, which is included with the software, to locate information. The television program of the same name is also popular with students.(Apple IIe, Macintosh or MS-DOS)

6. *Mystery of the Hotel Victoria*, Tom Snyder
   Students apply problem-solving strategies to solve the mystery of the Hotel Victoria in this simulation game. Each character they meet is graphically presented in a room that can be viewed from all directions. Students computational skills are secondary; the ability to deduce time sequences and to make inferences are more important. As students progress through the game, the problems which involve whole numbers, fractions and decimals, become increasingly difficult.

Graphics Activities

Graphics Activity	Related to
1. Agency Logo	Lesson 1-2
2. Disguises for Detectives	Lesson 1-3
3. Mysterious Places	Lesson 3-2
4. Villains' Mug Shots	Lesson 3-4

DazzleDraw Menus

FILE	TOOLS	EDIT	GOODIES	UNDO
Load	Paint Brush	Capture	Grid	
Save	Spray Paint	Cut	Color	
Delete	Flood Fill	Copy	Mirrors	
Make Directory	Zoom	Paste	Modify Pattern	
Format Disk	Text	Clear Section	View Picture	
Make Slide Disk	Shapes	Exchange Colors	Clear Picture	
	Lines		Print Picture	

Title: Agency Logo

Related to Lesson 1-2

Computer tool: *Dazzle Draw*

Students use what they know about two-dimensional shapes to create a logo for the detective agency. They are introduced to a graphics program and learn to use the paint brush, shapes, flood fill, and text features. They save the graphic to disk and print it on paper.

Before using the computer:

- Students have been placed in cooperative learning groups and have selected names for their detective agencies.
- Discuss why businesses use logos. Give each group a stack of newspapers, magazines, and flyers and ask them to cut out as many logos as they can find in 15 minutes. Examine the logos and discuss what they have in common. Discuss the geometric shapes that are most often incorporated into logos.
- Discuss what you want to portray about your detective agency. What symbols might you use to convey this message? Individually, sketch a logo. Then, work collaboratively to create one logo to represent your group.
- Create a set of heavy paper tracers, stencils or templates that you can use to copy your logo onto signs, badges, detectives' logs, etc.
- Format data disks, one per group.
- Vocabulary: logo, template, names of 2-D shapes

During the computer activity:

- Using the Jigsaw cooperative learning strategy, train one expert from each group in the use of Dazzle Draw. (The rest of the students can be busy with the paper activities described above.)
- The goal of each expert is to create a computer graphic of the group's logo and save it to disk so that it can be used on signs, badges, letterhead paper, banners, etc.
- Show them how to use the paint brush, shapes, flood fill, and text features of Dazzle Draw. Save each logo to a data disk that will be used by all students in the cooperative group. (Save a backup copy of the logo, too, on a master disk maintained by the teacher!). Print it out, as well.

After using the computer:

- One group at a time, student experts introduce the rest of the group to Dazzle Draw, showing them how they created, saved, and printed the logo. They give each group member a few minutes to explore Dazzle Draw. (Rotate groups through the computer station or let them make reservations.)
- Provide opportunities for the detectives to work at the computer center creating signs, banners, badges, etc. with their logo.
- Discuss the similarities and differences between the paper tracers and the computer graphic of a logo.

Students learn:

Mathematics

- review 2-D shapes

Computer skills

- mousing, saving, printing
- graphics tools

Other

- consensus-building
- advertising techniques

Title: Disguises for Detectives

Related to Lesson 1-3

Computer tool: *Dazzle Draw*

Students learn to find the vertical line of symmetry in their own faces and to use a computer graphics tool to make a self-portrait. Using the mirror tool or copy, flip, and paste, they create a graphic that can be used as the starting point for a number of disguises.

Before using the computer:

- Use mirrors to examine your facial features. Discuss the line of symmetry of your face.

During the computer activity:

- Turn on the vertical mirror within Dazzle Draw. Make a self-portrait by drawing one half of your face and letting Dazzle Draw create the matching half. Save this picture on the group's data disk.
- If you are not using Dazzle Draw, your graphics package may not have a mirror tool. If so, teach the students to copy, flip, and paste one side of the face to create the other side.
- Add a disguise to your self-portrait by loading the original, painting on top of it, and saving it with a different filename. Give your disguise a name.

  Variation: Use a scanner to digitize students' photos. Then use a paint program such as PaintWorks (GS) or SuperPaint (Mac) to touch-up the original, creating disguises as suggested in this activity.

After using the computer:

- Make a display of the detectives and their disquises.
- Try to look like the person in your graphic disguise by dressing up in clothes and stage make–up.
- Use your picture in your ID card.
- How many hats, pants, coats, etc. are in your collection of dress-up clothes for disguises? Figure out how many different disguises you can make.

Students learn:

Mathematics

- line of symmetry
- flip

Computer skills

- mirror tool
- copy, paste
- flip, rotate

Title: Mysterious Places

Related to Lesson 3-2

Computer tool: *Dazzle Draw*

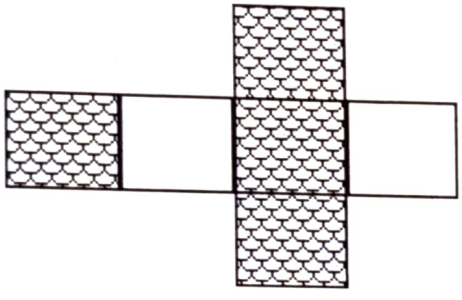
Students will create and share nets of three-dimensional building blocks that can be used to construct mysterious buildings.

Before using the computer:

- In groups, students brainstorm for things that come to mind when they think of mysterious places. Some students may wish to create a mindmap.
- Students examine pictures of mansions, castles, old houses, and other mysterious places and identify the three-dimensional shapes of which they are constructed. (Try to locate pictures of places that include pyramids, prisms, cylinders, cones, cubes and rectangular prisms.)
- Students use dot paper to create and test nets that can be used to construct sections of a building.

During the computer activity:

- Students create nets that will be printed, cut, and folded to create a three-dimensional building. To do this, they will have to create a basic shape, copy it, paste several copies on the screen, slide the copies into position, and flip some so that they will fit. Group members should be responsible for making different nets and sharing their creations with the others.
- After each net has been tested, the design should be made available to everyone in the class. Students can then load the design and use the fill tool to colour it or add patterns such as brick, lumber, and stucco.



After using the computer:

- Share the different nets that students discovered.
- If some shapes have not been created yet, set a challenge and let the cooperative groups work together to solve the problem.
- Publish a how-to book showing a sketch of the completed building and the nets used to construct it.

Students learn:

Mathematics

- 3-D shapes
- slide, flip, turn

Computer skills

- shapes
- slide, rotate, turn

Title: Villains' Mug Shots

Related to Lesson 3-4

Computer tool: *Dazzle Draw*

Students will use slides and flips to create a mug shot of a villain.

Before using the computer:

- Use the activities in **Lesson 3-4.** (Variation: A villain was peeking out from behind a curtain or around a wall. The witness saw only half of the face.)
- This activity could be used in conjunction with the first database activity. The introductory activities should complement each other.

During the computer activity:

- Students help a 'witness' reconstruct the villain's appearance using the mirror tool in Dazzle Draw. This part of the activity is similar to the self-portraits but the drawing will be fanciful instead of realistic.
- A mug shot shows a full face and two side views of the villain. Create one side view and then copy, paste, flip, and slide to make the second side view.
- Use the graphics files to create a wanted poster for each villain. Paste the database record underneath the graphic.

  Variation: Use Mac-a-Mug on the Macintosh to simulate how an identification program might work in real life.

After using the computer:

- Students should file a report telling about the villain and telling what they learned about slides and flips by doing this activity.

Students learn:

Mathematics

- slide, flip

Computer skills

- drag, rotate

Database Activities

- A database of 16 records is included for AppleWorks on the Apple IIe. If you will be using some other database program, create your own copy of the database by using the information on **Activity Sheet #DB2.**

Database Activity	Related to
1. A Database of Villains	Section 2
2. Solving Cases with Databases	Section 3
3. More Cases with Databases	Section 3
4. A Database of Detectives	Section 3

Before computer databases, people used file cards, forms, Rolodexes, and file folders. The activities in this collection can be done using the paper Villains cards, the computer Villains database, or both. We encourage you to use both so that students have a concrete experience that they can relate to the computer use of a database.

Basic concepts:

A database is a collection of information that can be compared to a set of file cards. Each file card contains the same kind of information in the same format. On the computer, each file card is called a **record.** Each piece of information in the record is called a **field.** The entire set of records is a **file.**

Different types of fields can be created, depending on the software you are using.

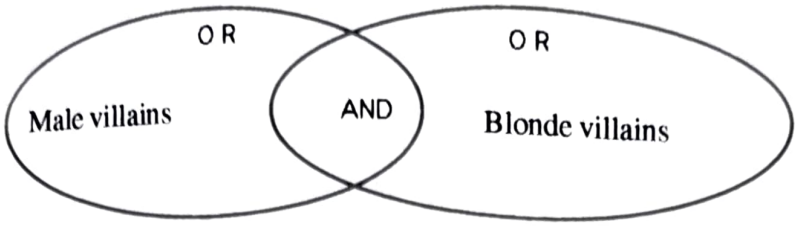
text	holds letters, numbers, characters
number	numeric values
date	date values
picture	graphics
logical	one of two values, e.g. yes or no
formula	obtains its value by processing values in other fields according to a formula specified by the user

Once you have some files to work with, you can explore the data-making predictions, testing hypotheses, looking for patterns, and making generalizations.

There are three basic search strategies:

1. **Arranging** or **sorting** the records according to the contents of one or more fields. Records can be sorted alphabetically or numerically. Single, double, and triple sorts are used to put records in order. For example, a double sort might sort first by surname and then by age.
2. **Finding** records that contain a specified value such as a word, or a combination of letters, numbers or values.

3. **Selecting** all records that meet a specified set of criteria. Search operators, such as <, >, =, contains, is blank, and ends with, are combined with logical operators such as **and,** or, **not** to define the search criteria. Venn diagrams can be used to graphically describe the selection criteria:



A report of the records meeting the search criteria, specified in the desired order, can be printed in single-record (form) or multiple-record (list, chart) format. Usually, a mailmerge with a word processing document is possible from a database program.

NAME: Samuel Smith
NICKNAME: Serious Sam
HAIR: Blonde

NAME	NICKNAME	HAIR
Samuel Smith	Serious Sam	Blonde
Lois Landmine	Lucky Lois	Brunett
Gary Grimace	Sourpuss	Blonde
Katherine Smith	Katy	Black
Felice Franks	Hotdog	Gray

Creating a Database is a Problem-Solving Experience

1. **Understand the Problem**
- What information will form the basis of the database?
- What reports do you expect to need?
- What searches and sorts do you expect to need?
- Use manipulatives such as file cards to simulate the database.
- Break the problem into smaller parts by considering a sample set of data.

2. **Make a Plan**
- What filename will you give to the database?
- What fields will you use? How will each field be labelled? What format will entries into the field take? In which order will the field be defined?
- Design the reports you will need. Will they be label-style or table-style?

3. **Carry out the Plan**
- Create the database and enter some sample data.
- Use the sample data to sort, select, and generate reports.
- Verify the validity of the sorts, selections, and reports by manually manipulating the data.

4. **Looking Back**
- Did the database suit your needs?
- Did the reports accurately reflect the data in the database? Anything missing? Extra?
- How could the design of the database be improved? Should fields be added, deleted, altered, renamed?
- Is this task best done by computer?

Title: A Database of Villains

Related to Section 2

Computer tool: *Database tool*

Students learn the basics of working with a database, first in a hands-on paper format and then on the computer.

Before using the computer:

- Have a 'staff meeting' of all of the agents from all of the detective agencies. (In other words, the entire class.) Discuss 'villains' that they know about from television, movies, books, comic books, etc. What things do these villains have in common? (extravagant names, outrageous features, gawdy clothes, big cars, etc.)
- Give each cooperative group one copy of the directions **(#DB2)** and 16 blank database cards **(#DB1).** Each group will create one set of cards using the information provided in the directions. Once the cards are complete, use them to complete part of Activity Sheet #DB3.
- Make working copies of the computer database by copying the appropriate files onto your data disks or by creating your own database using the information on **Sheet #DB2.**

During the computer activity:

- Using the Jigsaw cooperative learning strategy, train one expert from each group in finding information in the database. The experts should learn how to **sort alphabetically, sort numerically** and use **find.** Use boolean search operators such as and and or only if students already have experience with databases. (The rest of the students can be busy with the paper activities described above.)
- Give each cooperative group time at the computer stations to complete the rest of **Activity Sheet #DB3**. If a printer is available, let them print out reports to staple to the sheet, showing what they have done. Each group should hand in only one answer sheet.

After using the computer:

- Let the students browse the database to get ideas for writing their own mysteries. They could, for example, select two villains and plan a mystery around the characters.
- Graph some of the information such as hair color, male/female, height comparisons.
- Connect with Social Studies by creating a database of Canadian locations that could be used in some of your classroom mysteries. Be sure that it contains records of urban, rural, maritime, and remote locations.

Students learn:

Mathematics

- ordering numbers
- attributes, categorizing, patterns
- graphs

Computer skills

- entering database records
- browsing records
- sorting and selecting records

Other

- alphabetical order

VILLAINS

NAME: _____
NICKNAME: _____
AGE: _____ HEIGHT: _____ WEIGHT: _____
SHOE SIZE: _____ HAND SPAN: _____
HAIR COLOUR: _____ EYE COLOUR: _____

PHYSICAL FEATURES:

CLOTHING:

FRIENDS:

ADDRESS:

CAR:

SUSPECTED OF:

NOTES:

VILLAINS

NAME: _____
NICKNAME: _____
AGE: _____ HEIGHT: _____ WEIGHT: _____
SHOE SIZE: _____ HAND SPAN: _____
HAIR COLOUR: _____ EYE COLOUR: _____

PHYSICAL FEATURES:

CLOTHING:

FRIENDS:

ADDRESS:

CAR:

SUSPECTED OF:

NOTES:

A DATABASE OF VILLAINS

Create a set of Villains cards with the following information. The cards and the computer database will be used to solve some mysterious cases. It is important that the information has been entered accurately. The fields that are not mentioned in the chart below will not be used in the cases and, therefore, you can be creative with your entries into those fields.

NAME	HEIGHT	AGE	HAIR COLOUR	CAR	SHOE SIZE
Andy	162 cm	29	blonde	unknown	– unknown
Bob	145 cm	45	redhead	blue Jaguar	7
Carol	150 cm	19	blonde	unknown	6
David	178 cm	21	gray	unknown	8
Dirk	210 cm	31	brown	black Cadillac	13 1/2
Dolores	145 cm	16	blonde	bicycle	5
Doris	180 cm	40	black	red truck	9 1/2
Hans	168 cm	37	blonde	no vehicle	8
Hubert	170 cm	45	brown	blue truck	7
Katy	160 cm	21	blonde	green bicycle	6 1/2
Larry	165 cm	52	gray	silver Rolls Royce	– unknown
Linda	175 cm	30	brown	yellow Toyota car	7 1/2
Peter	170 cm	29	blonde	red Corvette	– unknown
Tony	195 cm	22	brown	bicycle	12
Violet	150 cm	22	brown	white Honda car	5
Zeke	175 cm	35	blonde	rusty, yellow Ford	10

When you have finished creating the set of 16 Villains cards for your detective agency, use them to answer the questions on **Activity Sheet #DB3.**

JIGSAW ACTIVITY: While everyone is busy creating the Villains cards, the teacher should teach one 'expert' from each group how to sort and find records in the computer database. The 'expert' will then be responsible for helping the members of his or her group to use the information in the database to complete the following activity sheets.

Student Activity Sheet #DB3

Group Name _____

Using the Villains Cards and the Computer Database

USE YOUR SET OF VILLAINS CARDS TO ANSWER THE FOLLOWING QUESTIONS.

THEN, GO TO THE COMPUTER DATABASE AND SEE IF YOU GET THE SAME ANSWERS.

1. Sort the records alphabetically by name. List the names below.

2. Sort the records from shortest to tallest. List the names below.

3. How many men are there? How many women?

4. How many women are blonde?

5. How many men have beards?

6. Create a table to summarize the following information from the database. Use the other side of the page or a lined sheet of paper. The records should be sorted alphabetically by name.

NAME	AGE	MALE/FEMALE	HAIR COLOR	HEIGHT	WEIGHT	CAR

AND DO QUESTIONS 1-6 AGAIN. DID YOU GET THE SAME ANSWERS USING THE CARDS AND USING THE COMPUTER DATABASE? BEFORE ANSWERING QUESTIONS 7 AND 8, GO TO THE COMPUTER DATABASE WITH YOUR GROUP.

7. Explain how the cards and the computer database are alike.

8. Explain how the cards and the computer database are different.

Student Activity Sheet #DB3

Group Name _____

Answer Sheet _____

Using the Villains Cards and the Computer Database

USE YOUR SET OF VILLAINS CARDS TO ANSWER THE FOLLOWING QUESTIONS.

THEN, GO TO THE COMPUTER DATABASE AND SEE IF YOU GET THE SAME ANSWERS.

1. Sort the records alphabetically by name. List the names below.

Andy	Dirk	Hubert	Peter
Bob	Dolores	Katy	Tony
Carol	Doris	Larry	Violet
David	Hans	Linda	Zeke

2. Sort the records from shortest to tallest. List the names below.

Bob	Katy	Peter	David
Dolores	Andy	Hubert	Doris
Carol	Larry	Linda	Tony
Violet	Hans	Zeke	Dirk

3. How many men are there? How many women?

   10 men and 6 women (Only the names can be used to determine this.)

4. How many women are blonde?

   3 are blonde: Carol, Dolores, Katy

5. How many men have beards?

   Answers will vary depending on the pictures drawn by the students. This attribute is not important in the mini-mysteries that follow.

6. Create a table to summarize the following information from the database. Use the other side of the page or a lined sheet of paper. The records should be sorted alphabetically by name.

NAME	AGE	MALE/FEMALE	HAIR COLOUR	HEIGHT	WEIGHT	CAR

Check this against the table on Activity Sheet #DB2.

BEFORE ANSWERING QUESTIONS 7 AND 8, GO TO THE COMPUTER DATABASE WITH YOUR GROUP AND DO QUESTIONS 1-6 AGAIN. DID YOU GET THE SAME ANSWERS USING THE CARDS AND USING THE COMPUTER DATABASE?

7. Explain how the cards and the computer database are alike.

   The cards and the database both contain fields with information about the villains. Both can be sorted and, in both cases, records can be found.

8. Explain how the cards and the computer database are different.

   The cards contain pictures of the villains drawn by the students. If you have a powerful computer database you can include pictures, too. sort and find are much faster on the computer.

Title: Solving Cases with Databases

Related to Section 3

Computer tool: *Database tool*

Students will use the cards or the computer database to solve simple cases. They should work in cooperative groups assuming the roles described in the activity. This set of mysteries should be spread out over several days.

Before using the computer:

- Discuss the roles that will be played by each member of each cooperative group. Be sure that everyone understands the directions.
- Tell students that you will be watching for positive cooperative behaviours during the group activities. Brainstorm and list some of the things that you might see.
- Make one copy of **Activity Sheets #DB5-#DB7** for each group. Cut them apart and distribute them according to the notes on the sheet. (Give one Mystery per day.)

During the computer activity:

- Rotate the roles during each *Mystery* so that students get a chance to play each of the roles.
- Students can benefit from solving each mystery twice, once at the computer and once with the cards. Plan to provide them with adequate time at the computer and away from the computer for this series of mysteries.

After using the computer:

- Challenge students to create similar mysteries of their own. Select a few for all of the detective agencies to solve.
- Challenge students to write a mystery based on the case of the day. They could dramatize the day's mystery, too.

Students learn:

Mathematics

- problem solving

Computer skills

- locating information in a database

Other

- cooperation

Student Activity Sheet #DB4

Cut this sheet apart and give the pieces to individual members of each cooperative group.

Give this card to the Chief Detective

Roles

Chief Detective: Read the Mystery to the group and make sure that everyone knows what they must do.

Cub Detective: Read the clues, one by one, to the group and help them to discuss what they mean.

Data Handler: Use the cards or the computer database to find villains that match the descriptions in the clues.

Recorder: Record your findings on the Activity Sheet.

Mystery 1

The Museum was robbed last night. The security guard heard the alarm and raced to the back door. He saw a suspect running away in the dark. The detectives have gathered some clues and they think they know who should be brought in for questioning.

Give this card to the Cub Detective.

Mystery 1

Clue #1: The suspect was quite tall, at least 175 cm.

Clue #2: The guard said, "I saw the suspect drive away in a car."

Clue #3: Then the guard said, "He had brown, wavy hair."

Give this card to the Recorder.

Group Name _____

Mystery 1

Clue #1: According to the database, how many villains match this description? What are their names?

Clue #2: List the names of the suspects that fit the information in both clues.

Clue #3: Who should be brought in for questioning?

Student Activity Sheet #DB5

Cut this sheet apart and give the pieces to individual members of each cooperative group.

Give this card to the Chief Detective.

Roles

Chief Detective: Read the Mystery to the group and make sure that everyone knows what they must do.

Cub Detective: Read the clues, one by one, to the group and help them to discuss what they mean.

Data Handler: Use the cards or the computer database to find villains that match the descriptions in the clues.

Recorder: Record your findings on the Activity Sheet.

Mystery 2

Doris and Andy went to a party last weekend. When they left the party, they had to walk two blocks to get to their car. On the way, they were sprayed with ketchup by a prankster. Who could it be? They gave their evidence to a detective in your agency. Can you help them locate the prankster?

Give this card to the Cub Detective.

Mystery 2

Clue #1: The suspect drove away in a car.

Clue #2: Doris said, "He was older than me."

Clue #3: Andy said, "He was taller than me.'

Give this card to the Recorder.

Group Name _____

Mystery 2

Clue #1: According to the database, how many villains match this description? What are their names?

Clue #2: List the names of the suspects that fit the information in both clues.

Clue #3: Who was the prankster?

Student Activity Sheet #DB6

Cut this sheet apart and give the pieces to individual members of each cooperative group.

Give this card to the Chief Detective.

Roles

Chief Detective: Read the Mystery to the group and make sure that everyone knows what they must do.

Cub Detective: Read the clues, one by one, to the group and help them to discuss what they mean.

Data Handler: Use the cards or the computer database to find villains that match the descriptions in the clues.

Recorder: Record your findings on the Activity Sheet.

Mystery 3

A diamond necklace was stolen from the jewellry story. A window was broken and footprints were found in the mud. Doris was at the scene of the crime. Did she do it?

Give this card to the Cub Detective.

Mystery 3

Clue #1: The thief dropped a handkerchief with the initial, D, on it.

Clue #2: "The footprints under the window are smaller than mine", said Doris.

Clue #3: There were blonde hairs on the handkerchief.

Give this card to the Recorder.

Group Name _____

Mystery 3

Clue #1: According to the database, how many villains match this description? What are their names?

Clue #2: List the names of the suspects that fit the information in both clues.

Clue #3: Who robbed the jewellry store?

Student Activity Sheet #DB7

Cut this sheet apart and give the pieces to individual members of each cooperative group.

Give this card to the Chief Detective.

Roles

Chief Detective: Read the Mystery to the group and make sure that everyone knows what they must do.

Cub Detective: Read the clues, one by one, to the group and help them to discuss what they mean.

Data Handler: Use the cards or the computer database to find villains that match the descriptions in the clues.

Recorder: Record your findings on the Activity Sheet.

Mystery 4

Someone opened the gate to the cattle pen and all of the animals escaped. It took us two days to round them all up. Can your detective agency help us find the person who did this?

Give this card to the Cub Detective.

Mystery 4

Clue #1: The suspect was not blonde.

Clue #2: He did not drive away in a car.

Clue #3: When I saw them lined up, I knew who it was. It was the short one!

Give this card to the Recorder.

Group Name _____

Mystery 4

Clue #1: According to the database, how many villains match this description? What are their names?

Clue #2: List the names of the suspects that should be brought in for the line-up.

Clue #3: Who is guilty?

Answer keys

Mystery 1

Clue #1: The suspect was quite tall, at least175 cm.
David, Dirk, Doris, Linda, Tony, Zeke

Clue #2: The guard said, "I saw the suspect drive away in a car."
David, Dirk, Linda, Zeke

Clue #3: Then the guard said, "He had brown, wavy hair."
Dirk

Mystery 2

Clue #1: The suspect drove away in a car.
Andy, Bob, Carol, David, Dirk, Larry, Linda, Peter, Violet, Zeke

Clue #2: Doris said, "He was older than me."
Bob, Larry

Clue #3: Andy said, "He was taller than me.'
Larry

Mystery 3

Clue #1: The thief dropped a handkerchief with the initial, D, on it.
David, Dolores, Doris

Clue #2: "The footprints under the window were smaller than mine," said Doris.
David, Dolores

Clue #3: There were blonde hairs on the handkerchief.
Dolores

Mystery 4

Clue #1: The suspect was not blonde.
Bob, David, Dirk, Doris, Hubert, Larry, Linda, Tony, Violet

Clue #2: He did not drive away in a car.
David, Hubert, Tony

Clue #3: When I saw them lined up, I knew who it was. It was the short one!
Hubert

Title: A Database of Detectives

Related to Section 3

Computer tool: *Database tool*

Students will create a new database and enter records into it.

Before using the computer:

- Do the measurement activities in Section 3.
- Discuss the fields that the new database will need. Which fields should be defined as numeric? Which ones should be defined for text?

During the computer activity:

- Using the Jigsaw cooperative learning strategy, train one expert from each group to create a new database and define the fields needed. (The rest of the students can be busy with the measurement activities in Section 3.)
- Under the guidance of the group 'expert', the cooperative groups should take turns at the computer station entering records about themselves. Print out a record of each student for a display.

After using the computer:

- Students should create a display using the record from the database and, if available, the self-portrait created in the graphics activity.

Students learn:

Mathematics

- measurement

Computer skills

- creating a new database

Title: Working in the Lab

Related to Lesson 1-1

Computer tool: *Mystery Objects*, MECC

Students use a computer simulation to test a hidden object for its physical properties and, thereby, to identify it. Six tools are available in the form of Data Snoopers. They test for texture, size, weight, smell, shape, and colour.

Before using the computer:

- The teacher sets the options within the software so that the simulation will use metric units of measurement. If the computer does not have a color monitor, the color test can be turned off. (Use **Control-A** to access the management features).
- Introduce students to the software by demonstrating its main features. They should begin with the 'Practice Sessions' until they feel comfortable with the tests. Then, they should move on to 'On Your Own' to accept harder challenges posed by the computer.
- Provide other concrete activities such as 'Mystery Box' and 'Mystery Bag' described on page 18 of the MECC teacher's guide.

During the computer activity:

- Students should work together in pairs. One student is the keyboarder and the other records observations on worksheets such as those provided in the MECC teacher's guide, page 26.
- Set a time limit and encourage students to identify as many objects as possible. This simulation is also appropriate for much younger students and, therefore, should not require much classroom time.

After using the computer:

- Discuss the strategies that were successful in identifying the mystery objects.
- Each detective should write a summary of experiences, strategies, and learnings. How will this experience make you a better detective?
- Students could create a database based upon the information gathered in this activity. Keep adding to this database as students perform similar tests on other objects.
- Mystery Matter is a more advanced simulation in which students test for solubility, melting/boiling point, freezing/condensing point, magnetism, electrical conductivity, pH, and density. Mathematical content is not significant.

Students learn:

Mathematics

- measuring diameter,height, width, and length
- measuring weight of an object
- classification
- problem solving

Computer skills

- booting a disk
- using menus

Other

- physical properties of matter
- observing
- comparing
- record-keeping

Title: Code Quest

Related to Lesson 1-2

Computer tool: *Code Quest*, Sunburst

Students analyze codes to solve "What is it?" mysteries. Six different types of codes are available in Code Quest:

1. write the clue backwards
2. numbers represent letters
3. alphabet shift code
4. code words represent letters
5. transposition cypher using a box grid
6. pictures represent letters

Before using the computer:

- Discuss codes with the students. What codes do they already know? Write a few secret messages using the codes that they describe.
- Demonstrate the software to the whole class using a large monitor or television set connected to the computer. Let students work in cooperative groups trying to solve the coded clues as you work through a few challenges together. Note that **H** will give you a hint and **T** will let you test some letters to see their equivalent in code.
- The teacher may want to enter her own mystery objects and clues into the software. To do this, refer to the directions on pages 17-19 in the *Code Quest* teacher's guide.

During the computer activity:

- Students should work in cooperative groups or pairs. One person should be the keyboarder and another the recorder. If the group contains four students, the other two should have pencil and paper so that they can help to decipher the code. If students run out of time at the computer, note that games can be saved before they are finished.
- The software does not provide a score at the end of the session. You may want to have students record their activities on **Activity Sheet #CAI1.**

After using the computer:

- Discuss the types of codes that students encountered in the software. Give them time to make up their own "What is is?" mysteries based upon one or more of the codes. Publish a book of activities based upon codes and give each detective a copy.
- Do some research on codes. The Sunburst manual tells about the background of each of the six codes used in this software. See pages 10-15 of the *Code Quest* teacher's manual.

Students learn:

Mathematics

- patterns
- problem solving

Other

- flexibility

Student Activity Sheet #CAI1

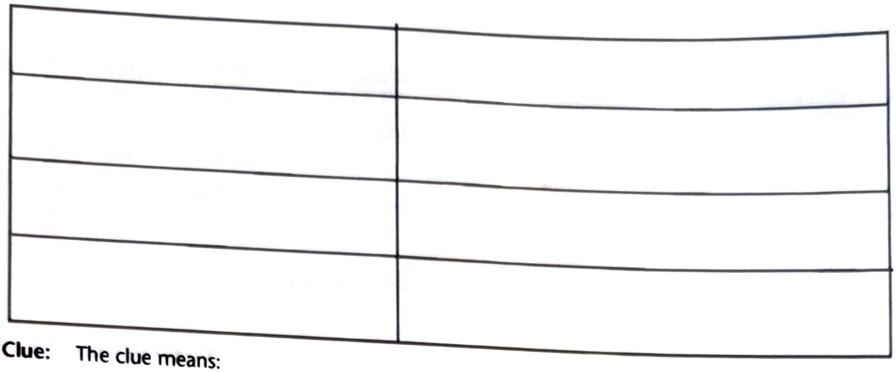
Group Name _____

Code Quest

Clue: The clue means:

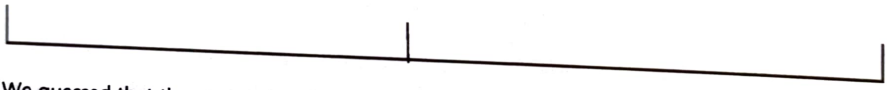
Test: The test told us this:

We guessed that the mysterious object was _____.



Clue: The clue means:

Test: The test told us this:



We guessed that the mysterious object was _____.

Title: Money

Related to Lesson 2-3

Computer tool: Money Works, MECC

Students use a computer program to practice money-recognition, money-counting, and change-making skills using Canadian currency. They monitor their own progress, work with others to master the concepts, and take a quiz when they feel that they have mastered the skills.

Before using the computer:

- The teacher sets the options within the software so that the drill will be appropriate and so that Canadian currency is selected. (Use **Control-A** to access the management features).
- Students meet in their cooperative groups and discuss money. What denominations do we have in Canada? Sketch coins using relative sizes and showing heads and tails.
- The teacher demonstrates Money Works showing students how to choose activities from the main menu, how to escape, and how to record their scores on the tracking sheets. Encourage students to study together so that everyone in their group can pass the detective's exam on money.

During the computer activity:

- Students can work alone or in pairs at the computer. After each round of questions, they should record their score on the tracking sheet, **CAI2.** The sheet has been set up to encourage them to use the same activity several times. (The questions will be different each time). If they are consistently getting high scores, they can cross out the rest of the boxes in the row.
- It will take several trips to the computer to complete this training activity.

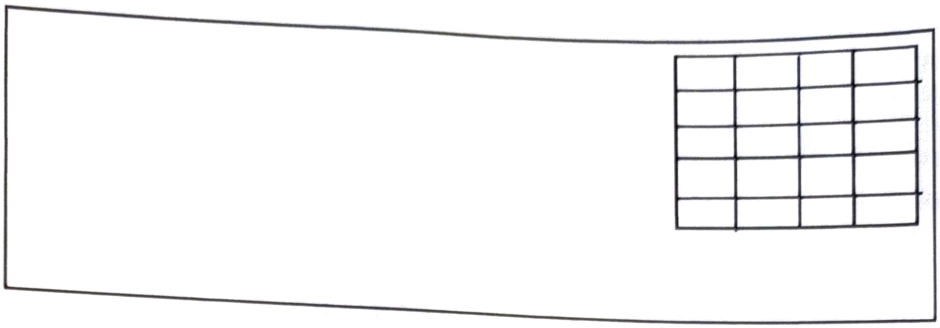
After using the computer:

- When the students feel that everyone in the group has mastered the concepts, they are given a quiz to ensure individual accountability. Everyone must meet the standard for the quiz or the group must study together again (including going back to the computer station for more drill) until everyone can meet it.
- *Money Mint* lets students design and print their own currency. They learn about exchange rates by shopping in England, France, Germany or Japan. Discuss money from other countries.

Students learn:

Mathematics

- recognizing and counting money
- making correct change



Money Works

Scores: 1 2 3 4

How much Money?
Money Machine
Counting Change
Money Mint

Detective's Test

Date _____ Score _____

Comments:

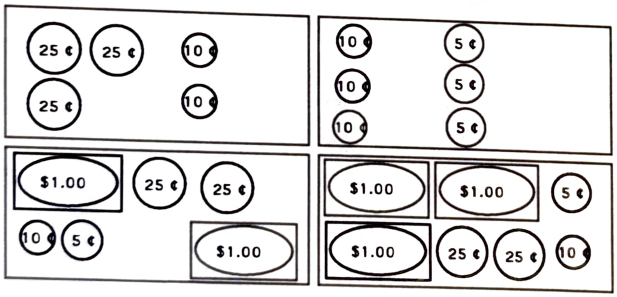
_____

_____

Detective's Test: MONEY

NAME _____

1. How much money is shown in each box of evidence?



1. How much change should the detective get when the following bills are paid?

Total bill	Detective gives	Change received
$ 5.69	$ 10.00	$
$ 1.25	$ 2.00	$
$ 9.99	$ 20.00	$
$ 0.79	$ 1.00	$
$ 2.57	$ 20.00	$

Title: Mastering Measurement

Related to Lesson 2-4

Computer tool: *Measure Works*, MECC

Students use a computer program to practice measuring height, width, and length of objects; determine the appropriate unit (weight, linear, liquid); and estimate linear size using non-standard units of measurement. They monitor their own progress, work with others to master the concepts, and take a quiz when they feel that they have mastered the knowledge and skills.

Before using the computer:

- The teacher sets the options within the software so that the drill will be appropriate and that metric units are selected. (Use **Control-A** to access the management).
- Students meet in their cooperative groups and discuss the measurement devices that would be important for detective's to know about.
- The teacher demonstrates Measure Works showing students how to choose activities from the main menu, how to escape, and how to record their scores on the tracking sheets. Encourage students to study together so that everyone in their group can pass the detective's exam on measurement.

During the computer activity:

- Students can work alone or in pairs at the computer. After each round of questions, they should record their score on the tracking sheet. The sheet has been set up to encourage them to use the same activity several times. (The questions will be different each time). If they are consistently getting high scores, they can cross out the rest of the boxes in the row.
- It will take several trips to the computer to complete this training activity.

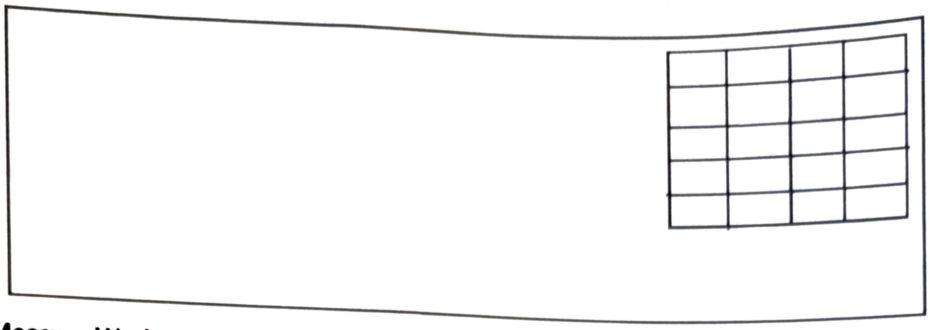
After using the computer:

- When the students feel that everyone in the group has mastered the concepts, they are given a quiz to ensure individual accountability. Everyone must meet the standard for the quiz or the group must study together again (including going back to the computer station for more drill) until everyone can meet it.

Students learn:

Mathematics

- measuring and estimating height, width, and length
- determining appropriate unit of measurement



Measure Works

Scores: 1 2 3 4

How many Units?
Shape Builder
Ball Drop
Money Mint

Detective's Test

Date _____ Score _____

Comments:

_____

_____

Detective's Test: MEASUREMENT

NAME _____

1. What unit of measure should a detective use to measure the evidence?

_____ footprint
_____ fingerprint
_____ hair
_____ tire track
_____ scratch on paint
_____ distance to curb
_____ distance to town
_____ size of package
_____ weight of package
_____ size of bullet

2. Name something in the Detective Agency that is the same measure as each of the following:

_____ 1 cm
_____ 50 g
_____ 2 meters
_____ 500 mm
_____ 3 kg
_____ 30 cm
_____ 1 kg
_____ 150 g
_____ 5 meters
_____ 900 mm

Title: Telling Time

Related to Lesson 3-5

Computer tool: *Clock Works*, MECC

Students use a computer program to practice telling time with analog and digital clocks. They monitor their own progress, work with others to master the concepts, and take a quiz when they feel that they have mastered the knowledge and skills.

Before using the computer:

- The teacher sets the options within the software so that the drill will be appropriate. (Use **Control-A** to access the management features in MECC software.)
- Students meet in their cooperative groups and discuss the clocks in their lives: locations, analog, digital, shapes, sounds, etc. They sketch two different clocks and check each other's work for accuracy.
- The teacher demonstrates *Clock Works* showing students how to choose activities from the main menu, how to escape, and how to record their scores on the tracking sheets. Encourage students to study together so that everyone in their group can pass the detective's exam on telling time.

During the computer activity:

- Students can work alone or in pairs at the computer. After each round of questions, they should record their score on the tracking sheet. The sheet has been set up to encourage them to use the same activity several times. (The questions will be different each time). If they are consistently getting high scores, they can cross out the rest of the boxes in the row.
- It will take several trips to the computer to complete this training activity.

After using the computer:

- When the students feel that everyone in the group has mastered the concepts, they are given a quiz to ensure individual accountability. Everyone must meet the standard for the quiz or the group must study together again (including going back to the computer station for more drill) until everyone can meet it.

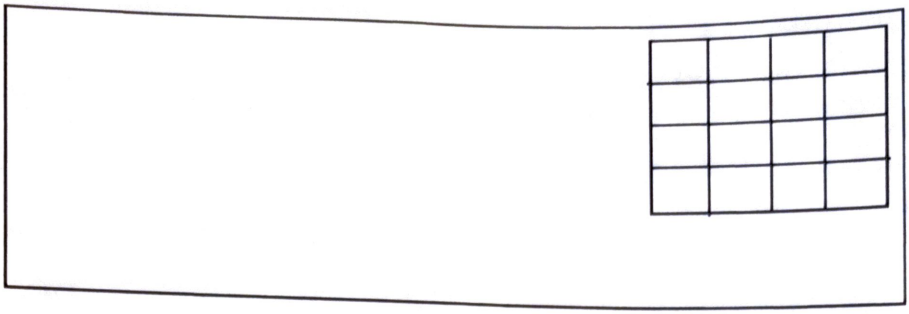
Students learn:

Mathematics

- telling time on analog and digital clocks

Computer skills

- booting a disk
- using menus



Clock Works

Scores: 1 2 3 4

What's the Time?
Set the Clock
Digital Drill

Detective's Test

Date _____ Score _____

Comments:

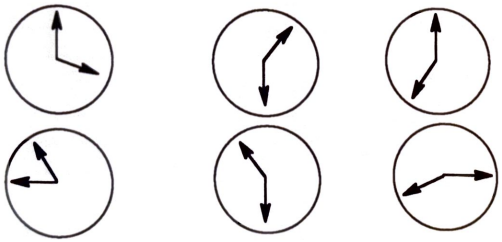
_____

_____

Detective's Test: TIME

NAME _____

1. What time is shown on each clock?



3:45 | 11:20 | 5:30

15 minutes after seven | a quarter to two | nine thirty